



WELCOMES YOU TO SUGARING WITH THE *SAPLING EVAPORATOR*

The Vermont Evaporator Company's *Sapling Evaporator* is designed for the backyard sugaring enthusiast with 5 to 50+ taps. The *Sapling* does not require a sugar house, and, with additional purchases, converts to a grill and a smoker for year-round use!

Although the *Sapling* is simply designed, it still has the advanced features of more expensive evaporators. The *Sapling* is a continuous-flow evaporator, meaning that sap is channeled around the pan using dividers to create a sugar gradient. This configuration allows syrup to be drawn off and sap to be added without emptying the pan. The continuous flow is more efficient than preexisting DIY methods, which means more syrup on more pancakes in less time.

With proper operation and care, you will get many years of enjoyment from your *Sapling*. We hope you get many years of enjoyment from your *Sapling*. Here's how to get started!

Setting up your *Sapling*

Before you start, be smart! You're dealing with hot temperatures and a live fire so:

- **DO NOT** operate your *Sapling* while intoxicated or under the influence of alcohol or drugs.
- **DO NOT** install your *Sapling* near combustible materials.
- **DO NOT** install your *Sapling* indoors; **DO NOT** install in a garage, barn or other outbuilding unless you know how to do so safely with proper ventilation and fire protection.
- **DO NOT** attempt to move your *Sapling* while the unit is hot.
- **DO NOT** start your *Sapling* without an insulating layer of sand or ash in the bottom of the barrel. (A couple of inches should do!) Failure to place an insulating layer in the bottom of your barrel can result in coals

burning right through the bottom of your barrel.

● **DO NOT** start or run your *Sapling* without sap or other fluid in the boiling pan; **DO NOT** allow your *Sapling* to cool without sap or other fluid in the pan. You can quickly destroy your pan by doing so.

Assembling your *Sapling*

What you will need besides your *Sapling*:

1. A two- or four-foot level;
2. wood shims;
3. sand and/or ashes;
4. baking soda;
5. vegetable or olive oil;
6. an electric drill with a 3/32" bit (optional);
7. a Phillips screwdriver or power drill with a Phillips bit; and
8. a thermometer.

To assemble your *Sapling*:

1. Remove all parts from inside the box. Inside the box, you will have:
 - one (1) *Sapling Evaporator Pan*;
 - one (1) 90° *Sapling Stack Elbow*;
 - two (2) *Sapling Stove Pipes*;
 - one (1) *Sapling Stack Flange*;
 - a smaller box, containing:
 - one (1) door
 - one (1) door frame
 - two (2) leg sets
 - one (1) ball valve
 - one (1) *Sapling Stack Bracket*
 - a smidge of pipe tape
 - eight (8) each: bolts, nuts, and lock washers for the legs

- sixteen (16) each bolts, nuts and lock washers for the door
 - seven (7) self-drilling screws, and
 - one (1) bung hole cover.
2. First, set aside the *Sapling Evaporator Pan*, the pour-off valve, and the smidge of pipe tape. Then, assemble the leg sets onto the barrel using the predrilled holes and the nuts, bolts and lock washers.

HINT: The easiest way to assemble the legs is as follows. If you have already installed the door, uninstall it. Orient your *Sapling* “bottom-up,” with the cavity facing down. (It helps to have a skinny table or workbench or pair of saw horses to do this while steadying the unit.) Align the holes in each leg set (so that the feet face the rear of the machine) on the corresponding holes on the barrel and push a bolt through each pair of holes. When all bolts have been inserted, reorient the unit exit-hole down (door-side up) with the cavity facing you. Install the lock washers and nuts and tighten!

3. Next, assemble the door frame onto the barrel using the nut and bolt assemblies provided, making sure that the catch for the door latch is on the left and the hinge pieces on the right.
4. Next, assemble the door on the frame by carefully aligning the holes on the door hinge piece just above the holes on the frame hinge piece. Then, gently tap the clevis pins in place to secure the door to the frame.
5. Center the *Sapling Stack Flange* to the exit hole in the back of the unit. Mark the location of the four predrilled holes in the takeoff on the barrel with pencil, chalk or a nail. Predrill those holes. Using four of the screws provided, affix the flange to the back of the barrel. (The screws are self-tapping, and, when enough pressure is applied, will tap into the barrel without the need for drilling holes. However, we recommend predrilling the holes for a smoother assembly.)
6. Slide the *Sapling Stack Elbow* on the *Sapling Stack Flange* affixed to the back of the barrel. Adjust the *Sapling Stack Elbow* so that the exit of the elbow is pointed straight up and the elbow is inserted into the takeoff as far as possible. Screw the elbow to the takeoff by driving one self-tapping screw straight down through the place where the elbow and flange overlap.
7. Looking at your *Sapling* from the stack-end (the back), position the stack bracket so that the bent end is flush with the back of the barrel, and the straight end is flush with the elbow above the elbow’s uppermost adjustable crease (see below). Mark the position of the predrilled hole on the back of the barrel with pencil, chalk or nail. Predrill a hole in the barrel. Using one of the last two of the screws provided, affix the stack stabilization bracket to the barrel. Use the last self-tapping screw to affix the bracket to the side of the elbow (this metal is thinner than the barrel and doesn’t need to be predrilled).



8. Fit a piece of *Sapling Stove Pipe* onto the *Sapling Stack Elbow*.
9. Fit the second piece of flue pipe onto the first piece of flue pipe.
10. Place the *Sapling Evaporator Pan* on the unit so that the draw-off is on the front of the left side, as you look at the unit from the front.
11. Starting one thread back from the exit, wrap your bit of pipe tape around the draw-off to the right and wind around until completely used. Screw the ball valve on over the pipe tape.
12. Screw the bung hole cover in. You're done!

Preparing Your Sapling for Use

1. Remove the pan.
2. Using shims and a two- or four-foot level, level your *Sapling* front to back and side to side.
3. Place a layer of sand and/or ashes in the bottom of your barrel (see above). **REMEMBER:** failure to place an insulating layer in the bottom of your barrel can result in catastrophic failure – the fire may burn right through your barrel!
4. Coat the exterior of the barrel with a thin layer of vegetable or olive oil (apply with a paper-towel or rag).
5. Replace the pan. Using your level, confirm that your pan is level front to back and side to side.
6. Before you boil your first sap, you'll want to remove any residual materials from the pan. Here's how you do that:

Prepare a solution of 10 gallons of water combined with 2 tablespoons of baking soda.

Fill the pan to 2 or 3 inches with the solution.

Start by building a small fire in the barrel and gradually build to a larger fire. **NOTE:** We **DO NOT** recommend heating your *Sapling* to over 600 degrees (as measured just above the elbow at the exit pipe) at any time. You may want to use a magnetic stove thermometer such as the *Sapling Stack Thermometer* to track your *Sapling's* temperature throughout operation.

Boil the solution for approximately 30 minutes, making sure the solution in the pan remains at approximately the 2-or 3-inch level by adding more solution, as needed.

7. While boiling, check your equipment:

Check to see that there are no leaks at the fittings in the pan.

Assuming you have an even fire underneath, check to see that the pan is boiling evenly.

Open the valve – ensure it works properly.

Check to see that your *Sapling* is drafting and venting correctly (that the fire has adequate air intake and that smoke is generally only coming out through the stack).

8. Allow the unit to cool and then drain the pan.

9. Rinse the pan thoroughly with clean water.

NOTE: It's always best to use non-chlorinated water if possible (chlorinated water can eventually cause corrosion of the pan).

Operating Your *Sapling Evaporator!*

CAUTION: NEVER, EVER, EVER fire the *Sapling* without liquid in the pan (or allow it to cool without liquid). Otherwise, the operation of the unit is relatively simple! Basically, you add sap at one location and it travels around the pan, becoming denser as it evaporates, until it gets to the valve. Here are the details:

1. Add 2 inches of sap in the pan. This is about 5 gallons of sap.
2. Start your fire.
3. Get the sap boiling.
4. After the sap has boiled down to half of its volume, gradually add more sap at the back, right corner of the pan until the sap level is back up to 2 inches. Continue to add sap at this location gradually as needed to keep the level at 2 inches. Do this for several hours.
5. There are a number of ways to tell if your syrup is “done.” The most sophisticated is to use an instrument called a syrup hydrometer to measure the sugar content of your boil. Another is to measure temperature: syrup boils at about 7 degrees F above the boiling point of water (so, approximately 219

degrees F). Therefore, when the temperature of the liquid close to the exit valve measures 219 degrees F, you can draw off syrup (this will take several hours). The syrup should have an amber color and have the consistency of . . . syrup.

6. Get a clean container and place it under the valve exit.
7. Open the valve and watch your exit temperature.
8. If possible, simultaneously add fresh sap at the introduction location. If not possible, add some before you draw off and some more after.
9. Continue to draw off syrup until your exit temperature drops below 219°. You will likely get less than a pint of finished syrup per draw.
10. You may also choose to draw off a bit early into another pot or pan and “finish” on, for example, a propane burner outside, or on the kitchen stove inside, where it may be easier to control and monitor the temperature. **Do not feel badly about choosing to go this route, especially at the beginning. Finishing on the *Sapling* requires practice and skill. You will get better at this every year!**
11. At the end of your boiling day, draw off about a gallon of the sap closest to being syrup. You can finish it as described above, or use it the next time you boil for a faster startup.
12. Monitor your evaporator until the boiling stops and the fire has died out.

Some Tips:

Don't add too much new sap at one time, and try to maintain a constant boil. This will result in a more efficient process and lighter syrup.

To obtain high, even heat, use dry, mixed (hardwoods and softwoods) wood that is thinly split (like the thickest part of a baseball bat).

Load often with small amounts of wood to maintain a consistent level of heat.

Maintaining your *Sapling*

Your *Sapling* will have a long life. Just how long (And how beautiful a life it is) will depend on how you care for it.

During Sugaring Season

Clean out some, but not all, of the ashes when the unit has cooled after each boil.

After the Season is Over

Your pan will likely have some deposits/scaling. To clean, use as much of the baking soda-water solution described above as you need to so that the coating to be removed is covered with water. Simmer the solution for a minimum of one hour and ideally until you see the deposits dissolve. Let the fire die out and leave the pan overnight. Brush off the loose scale and rinse the pan. If deposits remain, you may want to repeat the process. Store your pan in an indoor location (a garage, shed or barn is fine).

The best practice is to clean out the ash and oil the inside of your barrel with vegetable or olive oil when not in use for extended periods of time, and, unless your *Sapling* can be stored in a garage or barn, you should cover it when not in use. Consider purchasing the *Sapling Grill Cover* for this purpose. If water gets in your barrel, be sure to dump it out, dry it out, and apply another layer of oil to discourage rust.

Expansion and contraction caused by heating, cooling and exposure to the elements may eventually cause some cracking, flaking, or thinning in the paint on your *Sapling*. If you notice this, after the barrel has cooled, sand the area with 100 grit sandpaper and repaint with *Sapling Flat Black Paint*, or the equivalent.

Consider purchasing the *Sapling Care Kit*, which includes everything you need for maintaining the *Sapling*!